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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,440	03/02/2005	Kazuhisa Ose	Nissin-3-PCT/Minori	3389
156 7590 11/07/2007 KIRSCHSTEIN, OTTINGER, ISRAEL & SCHIFFMILLER, P.C. 489 FIFTH AVENUE NEW YORK, NY 10017			EXAMINER CHEUNG, VICTOR	
			ART UNIT 3714	PAPER NUMBER
			MAIL DATE 11/07/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/526,440

Applicant(s)

OSE ET AL.

Examiner

Victor Cheung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 1 objected to because of the following informalities:

For clarity, a comma should be inserted in line 6 to read: --less than 10 $\mu$ m, and a light reflectance--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehoff et al. (US Patent No. 5,452,219) in view of Ginneken et al. (Applied Optics).

Dehoff et al. disclose a method of making a tooth mold, the method including the step of laser scanning a model tooth (Abstract). The model may be made of materials such as waxes, ceramics, glass, porcelain, plastics, and metals (Col. 7, Lines 8-10), each of which are non-transparent or semi-transparent. Dehoff et al. disclose that the outer coating of the model can be varied to produce a myriad of optical and mechanical properties (Col. 7, Lines 41-45). The accuracy of the laser scan readings is dependent on the tooth model being reflective (Col. 5, Lines 65-68). Dehoff et

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al. disclose that the color of the tooth can be varied and can be made to produce a color capable of producing a natural appearance (Col. 7, Lines 24-45).

However, Dehoff et al. do not specifically disclose the roughness of the surface.

Ginneken et al. disclose that in modeling, one factor of reflectance is based on the roughness of the surface (Page 130, Introduction).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the roughness to a value between  $0.1\mu\text{m}$  and  $10\mu\text{m}$  and to have a reflectance of 70% or higher, thereby providing a model that is easily and accurately scanned. As disclosed by Dehoff et al. and Ginneken et al., the accuracy of a laser depends on both the roughness and reflectance of the model being scanned. Where a parameter is recognized to be a result-effective variable, it is prima facie obvious for one of ordinary skill in the art to determine an optimum value for that parameter through routine experimentation. See MPEP 2144.05(II).

It would have been obvious to have a color difference  $\Delta E^*_{ab}$  of 15 or less, thereby producing a color shade representative of a real tooth.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Durbin et al. (USPN 6,592,371) disclose a method for imaging a three dimensional structure using lasers. Dehoff et al. (USPN 5,691,905) disclose prosthetic teeth and teeth molding materials.

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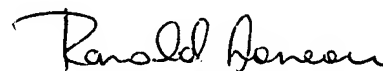
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor Cheung whose telephone number is (571) 270-1349. The examiner can normally be reached on Mon-Fri, 9-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VC

Victor Cheung  
November 1, 2007



RONALD LANEAU  
PRIMARY EXAMINER